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ABSTRACT

The two largest programs of federally-funded vocational education for women are home economics and office programs, which suggests both sex-role sterectyping and occupational segregation. Investigated are correlates and consequences of high school curriculum on young women in curricular choice or assignment, persistence in schooling, and economic, occupational and attitudinal post-school outcomes. Data on young white and black women are drawn from the National Longitudinal Surveys; both tabular and regression analysis are used. Findings relate to policy on vocational education, but also reveal that young women face important dilemmas in their educational and vocational development. (Author)

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THE EFFECTS OF SCHOOL CURRICULUM ON YOUNG WOMEN

by

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Available information on the status of women in American society clearly shows some effects of sex-role stereotyping and occupational segregation. As Steiger and Cooper (1975) point out, more than 25 percent of all working women could be found in only five occupations: secretary, retail sales clerk, bookkeeper, waitress and public elementary school teacher. Half of all women workers were employed in just 17 occupations (out of more than 400), while one needed 63 occupations to account for half of male workers.

Even so, the role of secondary education in relation the educational and vocational development of young women has not received significant attention, seemingly because of a lack of interest.

In the literature on the status of women there is an emphasis upon those who complete college, especially professional women, and in the literature on secondary education there is an emphasis on the effects of vocational education among males. Yet the fact is that fully 80 percent of all female enrollments in federally-funded vocational education in 1972 were in homemaking and office fields. This suggests that educational policies at the high school level may contribute to both sex-role stereotyping and occupational segregation for millions of women.

To gain needed insights into the effects of high school curriculum upon young women, this study investigates correlates and consequences of high school curriculum through analyses of a large number of criterion measures grouped into three domains. First is the process of curricular choice (or assigment) and includes as topics of interest: educational goals, plans for work after leaving school, occupational aspirations, and attitudes toward high school. Second is persistence in school, including noncompletion of high school, the transition to college, perceived adequacy of high school preparation for work, and the extent (and nature) of any training received outside of regular school. Third is labor market experience, including extent of work, unemployment, occupational assignment, and economic measures.

The Data Base. The National Longitudinal Surveys of Labor Market Experience (NLS) includes information on over 5000 males aged 14 to 24 in 1966 and over 5000 females aged 14 to 24 in 1968. This project is sponsored by the U. S. Department of Labor and is conducted by the Center for Human Resource Research at The Ohio State University and the Bureau of the Census. Seven follow-up surveys have been conducted to date with the sample of females; additional follow-ups are being planned at this writing, as well as the drawing of new age-sex panels. For both the males and females, a special mailed survey of their high schools was also conducted in 1968. The field work consists primarily of face-to-face personal interviews with Census Bureau staff; reponse rates have remained high. Of the 5159 women interviewed initially in early 1968, about 90 percent were reinterviewed in 1972--the fourth follow-up. Another feature of the NLS should not be

overlooked. The initial sampling design included provision for oversampling the black population to facilitate analysis within or between whites and blacks. More complete information on the NLS is contained in the data bank handbook (Center for Human Resource Research, 1976).

Usage of the NLS data has been extensive, particularly by economists, and includes three major studies concerning vocational education. The first was completed by Stromsdorfer for the National Planning Association (1972), and results are also reported in Lecht (1974). It confined attention to males and touched upon retention in school, transition to college, and post-school economic outcomes. In Grasso (1975), attention is also confined to males, and a review and critique of Stromsdorfer's economic analysis is included. In Grasso and Shea (forthcoming) attention is paid specifically to males and females, and to blacks and whites, with respect to curricular differences in retention and persistence in school, and a wide variety of post-school outcomes. The present paper reports on the findings for women from this body of research.

Female Students. Reducing sex discrimination in education is not just a good thing to do: It is required by law. Title IX of the Education Amendments of 1972 provides that "no person . . . shall, on the basis of sex be excluded from participation in, or denied the benefits of, or be subjected to discrimination under any education program or activity receiving Federal financial assistance."

In fiscal year 1972, the most recent year for which enrollment information by sex was required of all states, 6,422,115 women enrolled in vocational programs constituted 56 percent of the total. Two of every five female enrollments in fiscal year 1975 were in consumer and homemaking subjects, and the vast majority of these were taking courses for nongainful work. Relatively few of them (one in ten) were in programs for gainful occupations such as dietician or day-care aide.

Within the federal-state vocational education statistics, enrollments are tallied in 130 instructional program areas. Ninety-seven of these specialties in 1972 were dominated by one sex (i.e., at least three-quarters of the students were male, or at least three-quarters were female). Women were a majority in 33 wage earning program areas--nearly all in office work, distributive education (sales and related), and allied health (Steele, 1975).

Sex segregration is evident in data on enrollments by major program area. Although women accounted for about half of enrollments in 1972, the only major program reflecting this division by sex was distributive education (see Table 1).

Sex segregation is also shown in data on enrollments by specialty area. A review of the fifteen largest instructional programs for males and females in 1972 shows that, except for certain business and commercial programs, the largest programs for women are related almost one-to-one with the occupations where women are concentrated in large numbers.

Table 1 Enrollments in Vocational Education Programs by Sex, 1972

Program	Total	Percent Total	Female	Male
Agriculture	896,460	7.7	5.4	94.6
Distribution	640,423	5.5	45.3	54.7
Health	336,652	2.9	84.7	15.3
Home economics	3,445,698	29.7	91.6	8.4
Office	2,351,878	20.3	76.4	23.6
Technical	337,069	2.9	9.8	90.2
Trades and industrial	2,397,968	20.7	11.7	88.3
Special programs (Disadvantaged, handicapped, etc.)	1,304,619	11.2	44.7	55.3

Source: U.S. Office of Education publication, "Summary Data, Vocational Education, Fiscal Year 1972."

The specialty areas with substantial numbers of men contain, in most instances, only negligible proportions of women. These data are viewed with alarm by those who note substantial earnings differences between male-and female-dominated occupations in the economy. It seems logical to hypothesize that vocational education contributes to sex inequalities in the labor market through sex segregation in enrollments, which leads to occupational segregation and earnings differentials.

Sex-segregated enrollments in high school with vocational programs are also reflected in data from the National Longitudinal Surveys. Among high school seniors, for instance, 15 percent of men but 23 percent of women said they were enrolled in either a vocational or commercial program of study (see table 2). Women were heavily concentrated in white-collar, clerical programs, while men in occupational areas were congregated in blue-collar specialties. Relatively few males report a white-collar curriculum and, for these few, the precise program area is probably distributive education (i.e., sales or marketing) rather than office or clerical work. Because of these differences, as well as for ease of exposition, we hereafter maintain the commercial designation when speaking of men who report such a program, and vocational for the other specialties. However, for women we use business and office in referring to the white-collar, clerical programs reported by women, and vocational for other occupational studies.

Interestingly, women in the NLS failed to report home economics as a program of study. In 1968, home economics had the largest number of secondary-level enrollments in federally-assisted vocational programs: nearly 1.5 million (Simon and Grant, 1973, p. 43). However, a negligible proportion of young women in the NLS report home economics as their curriculum: 0.6 percent of those enrolled in grade 10 to 12 in 1968. Thus, many students take home economics courses without perceiving them as their program of study.

Also on the basis of NLS estimates, approximately one million girls in grades 9 to 12 in 1968 are in a business or clerical program, a number not dissimilar from the number of federally-assisted program enrollments in the service area designated as "business and office": 1.1 million (ibid., p. 43). However, in addition to the women reporting a business and office program, well over half of the remainder of NLS female respondents--or over 2.6 million more high school girls--report having taken one or more courses in typing or shorthand. Thus, while 99 percent of high school business or office seniors say they had such course work, the same is true for about three-quarters or more of the remaining senior girls (see Table 3).

Moreover, while black girls were less likely overall to take such courses than white, nearly all of the difference by race is attributable to two factors. First, there was a much higher proportion of black than white girls in a general rather than a college preparatory program (e.g., 56 percent of black high school senior girls were in the general track, as compared to 31 percent of white). Second, any young woman in the

and women (1968) 14 to 24 years old, enrolled in grades 9-12

(N in thousands)[a]

	Whites				Blacks			
	9	10	11	12	9	10	11	12
	Men							
N[b]	840	1,493	1,475	1,315	153	212	195	147
Percent:[c]								
Vocational	5%	8%	12%	11%	6%	13%	18%	18%
Commercial	2	2	4	3	3	5	4	6
General	57	48	42	39	82	64	48	50
College prep	36	43	43	48	9	18	31	26
	Women							
N[b]	1,488	1,780	1,420	1,164	215	229	176	180
Percent:[c]								
Vocational	1%	1%	2%	4%	4%	7%	2%	2%
Business and office	8	15	19	19	5	15	18	19
General	64	48	32	31	78	54	51	56
College prep	27	36	46	46	14	25	29	24

Source: National Longitudinal Surveys.

[a] In this table and throughout the paper, N's that are shown "in thousands" are based on weighted NLS data.

[b] Excludes those for whom curriculum was not ascertained.

[c] Detail may not add to 100 percent due to rounding.

Table 3 Percentage of women (1968) 14 to 24 years old who completed one or more typing courses, by enrollment status, highest year of school completed, and race

	Grade enrolled					Not in high school		
	Total 9–12	9	10	11	12	Total	Dropouts	Graduates[a]
	Whites							
All curricula (avg)	55%	18%	50%	72%	82%	83%	63%	87%
Vocational	67	[b]	[b]	[b]	[b]	52	[b]	66
Business and office	85	24	82	99	99	99	93	99
General	52	20	50	86	87	79	57	89
College prep	45	12	34	51	71	79	63	79
	Blacks							
All curricula (avg)	49%	15%	42%	68%	75%	65%	42%	76%
Vocational	47	[b]	[b]	[b]	[b]	48	[b]	61
Business and office	86	[b]	79	92	99	92	78	97
General	41	12	31	71	69	59	38	70
College prep	47	5	42	51	74	66	[b]	76

Source: National Longitudinal Surveys.

[a] Includes high school graduates enrolled in college in 1968.

[b] Percent not shown; base bess than 25 sample cases.

general track has a lower than average probability of having had any typing or shorthand (again, see Table 3).

Status and ability differences. Several existing studies contain information on the characteristics of students in the different high school curricula. On the basis of Project Talent data, Evans and Galloway (1973) report that, on average, the vocational student ranks below the student in the general track with respect to socioeconomic level and ability, and that the college preparatory student ranks highest of all. The following Table, derived from published Talent data, reveals that male high school freshmen who were pursuing or expecting an occupational curriculum ranked below their peers in scholastic aptitude. However, in the data for females, young women in business and office programs do not conform to this trend. While about 40 percent of girls in the general track ranked above the overall median on the aptitude scale, this was true of about 45 percent of girls in business and office curricula.

NLS data on high school students in 1968 are consistent with the Talent data. Young women with high scholastic aptitude and/or from high-socioeconomic level families are very likely to enroll in the college preparatory curriculum (see Table 5). The distribution of women who were enrolled in the remaining curricula, by socioeconomic level and aptitude, follows a varied pattern (also, Table 5).

Attitudes toward school. In the NLS base year surveys, the youth were asked about their overall attitude toward high school: "All things considered, how do you feel about your high school experience? Do you like it very much? Like it fairly well? Dislike it somewhat? Dislike it very much?" Girls were more likely to "like it very much" than boys (i.e., 54 percent versus 44). Within each sex group, those in the college preparatory curriculum were more likely than average to say so. Among women, those in occupational curricula were as likely to like school as those in the general track (i.e., 51 percent of business and office students, 48 percent of other vocational students and 50 percent of general students). This is in contrast with findings for males, where occupational students liked school less than did the general students.

Educational aspirations. Data on educational aspirations of female high school students show striking differences by curriculum. First, the overall picture: 48 percent of the whites and 50 percent of the blacks said they "would like to get" four or more years of college (Table 6). Nearly one in four girls would like two years of college. Thus about three-fourths of all the females were hoping for postsecondary education.

Table 4 Academic Aptitude and by Program of Study, by Sex: 9th Grade Students, 1960

Current or Expected Curriculum	Percent of Students Above Total Population Median on Academic Aptitude Scale	
	Males	Females
College preparatory	77.4	74.4
General	44.4	40.1
Business and office	23.4	45.3
Vocational	33.3	25.9
Agriculture	31.1	7.9

Source: Project Talent data in Flanagan, et al., 1964, p. E-2.

Table 5 Distribution of female students by curriculum, race, socioeconomic level (SEL) and scholastic aptitude (SA): women enrolled in grades 10-12 in 1968.

	Whites			Blacks		
	High SA	Mid SA	Low SA	High SA	Mid SA	Low SA
	Percent in College Preparatory					
High SEL	76%	64	40	a	a	a
Mid SEL	59	37	10	a	69	20
Low SEL	34	16	7	a	22	20
	Percent, excluding College Preparatory, in Occupational Curricula.					
High SEL						
Business, office	0%	9	0	a	a	a
Vocational	16	25	27	a	a	a
Mid SEL						
Business, office	7	0	8	a	a	2
Vocational	38	36	28	a	a	39
Low SEL						
Business, office	a	7	1	a	0	7
Vocational	a	47	22	a	49	18

[a] Percent not shown; based on less than 25 sample cases.

Table 6 Educational aspirations, by curriculum and race: women (1968) enrolled in grades 10-12, base year

(N in thousands)

	N[a]	Percentage[c] 12 or less	college 2	college 4+
Whites				
Vocational	96	b	b	b
Business and office	751	52	36	12
General	1,663	40	30	30
College prep	1,830	6	16	79
Total (or average)	4,364	28	25	48
Blacks				
Vocational	22	b	b	b
Business and office	100	35	38	28
General	312	35	22	42
College prep	149	4	13	84
Total (or average)	584	28	22	50

[a] Excludes less than one percent for whom aspiration was not ascertained.

[b] Percent not shown; base less than 25 sample cases.

[c] Detail may not add to 100 percent due to rounding.

By curriculum, two observations are worth making. First, black girls within each curricular category evinced higher aspirations than whites. Second, of the business and office students, blacks were relatively unlikely to desire a four-year college program, and whites were remarkably unlikely to do so.

Educational goals are fostered, in part at least, by encouragement and support from parents, teachers, and peers, and the women were asked about some of these influences. Those in a college preparatory program seem to have been the beneficiaries of high levels of encouragement and support in comparison with classmates. For example, 77 percent of the white girls in academic programs and 71 percent of the black reported that they believed their parents wanted them to achieve four or more years of college. The same was true of only 38 and 52 percent of the white and black girls in a general program, and of even smaller proportions of youngsters in occupational curricula. Among business and office students, the figures for white and black women are 26 and 37 percent, respectively; among other vocational students, 17 and 20.

Occupational goals. Young women were asked about their plans at age 35. After a lead-in, "Now I would like to talk to you about your future plans," the interviewer asked: "What would you like to be doing when you are 35 years old?" If the respondent said "working," which was true of almost one-fourth of white students and almost one-half of black, she was asked to name the kind of work. If she said "married, keeping house, raising a family," or the like which was true of about two-thirds of whites and one-third of blacks, a further question was asked: "Sometimes women decide to work after they have been married for a while. If you were to work, what kind of work would you prefer?" Even after this, some expressed no occupational aspiration (e.g., "Don't plan to work.")

The pattern of responses, conceived as plans for work, was used for an index of intentions to work at age 35. Results with the index reveal substantial differences between the races, for young black women were clearly planning for work more than were young whites. However, there seem to be no differences by high school curriculum. This suggests that, although young women in vocational programs may be conceived as having a stronger orientation to a career than their peers, the effects of other factors on plans at 35 must be taken into account, such as higher education, marriage and motherhood. At the same time, enrollment in an occupational curriculum during high school may simply not constitute

evidence of intentions of working at age 35. For example, those in business and office programs may be developing skills primarily for use in the period immediately following high school.

Looking at those female students who specified a type of work desired at age 35, it is clear that occupational goals differ by curriculum. While 45 percent of all high school females desire professional and technical work, including teaching, this is true of only 9 percent of business and office students, but of over 70 percent of college prep students (see Table 7). In addition, while 37 percent of all high school females desire clerical work, including secretarial jobs, this is true of only one in six college prep females, but of more than three out of four business and office students.

In view of these differences, it is not surprising to find differences in other measures related to the occupation. Business and office students can be said to desire jobs which are stereotypically "female" jobs: 69 percent of them desire jobs in which over 80 percent of incumbents are female, while only 57 percent of other vocational students and only 54 percent of general students desire such heavily stereotypic jobs. The jobs desired by business and office students are also low-paying in comparison with jobs desired by their peers: 88 percent of business and office students desire jobs typically paying less than $6000 per year, while the analogous figures for other vocational and general students are 51 and 61 percent, respectively.

However, regardless of curriculum, the jobs desired by these young women strongly suggest occupational segregation by sex. Occupational goals were coded in the NLS according to the 1960 Census classification scheme. Although there are 297 possible codes, only the nine shown below are needed to account for <u>over two-thirds</u> of the job preferences of the girls in grades 10 to 12 in 1968:

Secretary (Code 342)	21%
Teachers (182,183,184)	20
Clerical and kindred, n.e.c. (370)	9
Professional nurse (150)	8
Hairdresser (843)	5
Sales clerk (394)	4
Social and welfare workers (171)	2
Total, top 9	69%

Moreover, despite great publicity about women's roles in recent years, these 1968 NLS data do not seem to be out-of-date. As reported in a recent Gallup Youth Survey, the top ten career

Table 7 Occupation Desired at Age 35 by High School Curriculum: Females Enrolled in Grades 10-12 in 1968

Percent in Selected Categories	High School Curriculum				
	Total	Vocational	Business, Office	College Preparatory	General
Major category:					
Professional, technical, kindred	45%	47%	9%	74%	33%
Clerical, kindred	37	11	77	16	40
Service workers	10	18	7	5	15
All other categories	8	24	7	5	12
Sex-stereotypic:					
Female jobs (80% or more of workers in the occupation are females)	53	57	69	46	54
Median occupational earnings:					
$8000 or more	10	15	2	15	9
$6000 to 8000	28	34	9	41	24
$4000 to 6000	57	26	86	42	60
Under $4000	5	25	2	2	7
Weighted n	4,978	119	861	1,989	1,983

preferences of teenage girls still include: secretary, teacher, nurse, social worker, and cosmetologist/hairdresser, "other medical," veterinarian, fashion design/modeling, doctor, and business. By contrast, the top ten choices of boys, in order, were: skilled worker, engineer, lawyer, teacher, professional athlete, musician, architect, farmer, doctor, and military (The Kappan, October 1976).

In the national survey of 32,000 youth sponsored by the American College Testing Program in Spring 1973 (Prediger, Roth and Noeth, p. 99), the "preferred occupations" of girls were also found to be more restricted than boys' and mirrored the present "reality" of the labor market. When occupational goals were categorized into 25 "job families" by the ACT investigators, they found that " . . . over half of the 11th-grade girls choose occupations falling in only 3 of the 25 job families: clerical and secretarial work, education and social services, nursing and human care" (ibid., p. 100). Only 7 percent of the girls aspired to occupations falling into the "technologies and trade" cluster of job families, where nearly half of the boys' preferred occupations were located. (Similarly, only 7 percent of the boys aspired to occupations in the 3 job families in which the girls' preferences centered.)

Recent efforts to expand career horizons among females may yield less than expected. A 1976 study of adolescent girls in Indiana discovered that, even while believing that girls now could enter many of the occupations previously dominated by males, the respondents were still more likely to desire the traditionally female careers (Mitchell, 1977). Another study conducted during the 1974-75 school year sought to locate ten "pacesetter" secondary schools, those that had succeeded in attracting young women into nontraditional areas. The study could not find any "pacesetter" schools. The authors reported that they did locate some high schools enrolling at least five females in one or more nontraditional fields, but even in these cases the females had not "enrolled in 'hard core' male programs (such as construction, metalworking, or auto mechanics), but in 'gray' areas such as vocational agriculture, printing, industrial chemistry, or television arts" (Kaufman, et al., 1976, p. 1).

Persistence in high school. It has frequently been argued by proponents of vocational education that vocational programs enhance completion of high school. To investigate this question with the national data, we perform a multiple regression relating high school completion to curriculum, aptitude, socioeconomic level, and type of community, using cross-sectional data for NLS females out of school at the 1972 follow-up survey. Attention is restricted to those who completed at least ten years of schooling, to minimize the possibility of associating effects to the general track by default. Results with such a model show positive effects on the completion of high school for both business and office programs and for other vocational programs,

but only for white females. Among the black females, the occupational program effects are positive, but nonsignificant (see Table 8).

Among NLS young women, pregnancy and marriage rank as significant reasons for ending (or, at least, interrupting) schooling, as evidenced in data for young women out of school in 1968, using a measure of the coincidence of the birth of a first child and schooling termination. Over one-third of NLS female high school dropouts are accounted for by this measure (see Table 9). Interestingly, college preparatory high school dropouts were more likely to leave school for marriage and/or pregnancy than were those from other curricula, presumably because they were less likely to leave for other reasons. At each attainment level, the percentage of black women who bore a child within one year of leaving school was higher than for whites. These findings emphasize that pregnant teenagers and young mothers comprise a special category of those with special needs.

The point is that many pregnant girls are advised (or required) to stay away from school; poor options are offered (e.g., one hour of homebound instruction per week); and should a girl wish later to reenter school, she is often reassigned to a continuation or adult school, often with a limited evening program at some distance from home. Many of these young women have a very great need to acquire education or training which will allow them to support themselves and their children.

Educational attainment. While the preceding section addressed the relationship between curriculum and dropping out of high school, this part addresses influences on educational attainment. Regressions are performed, with three alternative attainment criterion measures and a common set of independent variables; scholastic aptitude (SA), socioeconomic origin (SEO), and a set of dummy variables for both area of residence at age 14 and most recent high school curriculum. The residence variables are: 1) A14R, lived on a farm or ranch or elsewhere in the country; 2) A14T, lived in a town or small city under 25,000 population; and 3) A14CTY, lived in a large city of 100,000 or more. (The reference group, is A14S, having lived in a suburb of a large city or in a city of 25,000 to 100,000 population.) Curriculum is also represented by a set of dummy variables: 1) VOC, vocational; 2) COM, commercial; and 3) CP, college preparatory. The reference category is GEN, or general curriculum.

The dependent variables include two dichotomous measures: 1) 13+, whether a person completed 13 or more years of regular schooling; and 2) 13+/TNG, whether the respondent completed 13 or more years or had some post-school training. The third dependent variable is HSC, highest year of school completed, measured in continuous form. Because the analysis is restricted to respondents who had completed at least 10 years of education, HSC ranges from 10 to 20.

Table 8 High school completion: Regression results[a] on cross-sectional data for females out-of-school in 1972 with at least 10 years of schooling completed (Standard errors in parenthesis)

Explanatory variables and statistics	White Females	Black Females
Scholastic aptitude	.002**	.0015
	(.0005)	(.0012)
Socioeconomic origins	.02**	.03**
	(.003)	(.009)
Vocational [b]	.08*	.04
	(.045)	(.09)
Business and office[b]	.09**	.03
	(.02)	(.04)
College prep[b]	.10**	.11**
	(.02)	(.04)
Rural[c]	.05**	.06
	(.02)	(.05)
Small town[c]	.04**	.01
	(.01)	(.05)
Large city[c]	.02	-.05
	(.02)	(.04)
Constant	.40	.45
R^2	.09	.04
F	27.91**	3.94**
N	2,289	546
Mean (Y)[a]	.91	.85
SD (Y)[a]	.28	.36

[a] Dependent variable is coded "1" for those who had completed at least the twelfth grade, and "0" otherwise.

[b] Reference group: general curriculum.

[c] Reference group: respondents living in small city or suburb at age 14.

* Significant at .10 level (2-tailed t-test, except for SA and SEO).

** Significant at .05 level.

Table 9 Percentage of school leavers who bore a child within 1 year of leaving school, by race, highest year of school completed, and high school curriculum (most recent); women (1968) not enrolled in school, base year

	Highest year completed		
	10 & 11	12	13 to 15
Whites (avg)	35%	11%	16%
Vocational	a	a	a
Business and office	34	8	a
General	32	11	18
College preparatory	47	14	17
Blacks (avg)	44%	28%	22%
Vocational	a	32	a
Business and office	31	23	a
General	41	29	28
College preparatory	a	29	21

[a] Percent not shown: base less than 25 sample cases.

The regression results are presented for women in Table 10. Three variables dominate the results: SA, SEO, and whether enrolled in a college preparatory program in high school. Each positively influences attainment.

Concerning completion of one or more years of college (i.e.,"Y=13+"), three of the four occupational curriculum coefficients are negative and significant: -.12 and -.14 for B&O (business and office) among whites and blacks, respectively; and -.19 for VOC among black young women. Interpreted literally, these results would mean that these students from occupational curricula are between 12 and 19 percent less likely than those from the general curriculum (i.e., the reference group in this model) to complete any years of college. These results suggest that the occupational programs may have an independent, net negative impact on attainment of formal postsecondary schooling.

Concerning completion of any years of college or any training outside regular school (i.e., "Y=13+/TNG"), none of the occupational curriculum coefficients is statistically significant (i.e., not different from the effects of the general track.) Thus, expanding the definition of "attainment" to include nonformal postsecondary education or training erases the negative result previously obtained for occupational studies. Indeed, it also weakens the effects of origins and aptitudes, as witnessed by the smaller coefficients here than before, and reduces the potency of the model generally, as shown in the much lower percentages of variance explained (i.e.,R^2).

With respect to the number of years of formal schooling completed (i.e.,"Y=HSC"), none of the occupational coefficients is significant. Thus, even though occupational curricula are associated with lower probabilities of women completing any years of college, their positive influence on completing high school that was documented earlier (i.e., among whites at least), seems to have served as an offsetting influence, such that there is no clear statistically significant relationship with total years of schooling completed.

Post-school training. Paying explicit attention to the relationship between curriculum and the nature and extent of post-school training is not only valuable in its own right, but needs to be done in order to interpret curriculum effects on post-school labor market outcomes. As indicated earlier in findings from research with NLS data, while the vocational program may have a net negative impact on the amount of formal postsecondary schooling completed, opportunities for post-school training may serve as attractive alternatives, or substitutes for the academic studies.

The NLS data show that young women received training after high school from such sources as business and technical schools, adult education, and company-sponsored training programs. Nearly half

Table 10 Educational attainment and post-school training: regression results for women (1972)[a]

(Standard errors in parenthesis)

Explanatory variables and statistics	Whites			Blacks		
	Y = 13+ (1,0)	Y = 13+/ TNG (1,0)	Y = HSC (yrs)	Y = 13+ (1,0)	Y = 13+/ TNG (1,0)	Y = HSC (yrs)
SA	.006**	.004**	.03**	.007**	.003	.02**
	(.001)	(.001)	(.00)	(.001)	(.002)	(.00)
SEO	.06**	.04**	.21**	.06**	.05**	.17**
	(.005)	(.006)	(.02)	(.01)	(.01)	(.03)
VOC_{72}[b]	.03	.03	.30	-.19**	-.008	-.30
	(.06)	(.08)	(.26)	(.09)	(.12)	(.30)
$B\&O_{72}$[b]	-.12**	.02	-.09	-.14**	.02	-.24
	(.02)	(.03)	(.08)	(.04)	(.06)	(.15)
CP_{72}[b]	.33**	.24**	1.27**	.26**	.18**	.85**
	(.02)	(.03)	(.09)	(.05)	(.06)	(.17)
A14R[c]	.08**	-.02	.35**	.09*	-.14**	.32*
	(.02)	(.03)	(.10)	(.05)	(.06)	(.17)
A14T[c]	.04*	-.05*	-.15*	-.02	-.12*	-.11
	(.02)	(.03)	(.09)	(.05)	(.07)	(.18)
A14CTY[c]	.06**	.04	.25**	-.05	-.06	-.32**
	(.02)	(.03)	(.10)	(.05)	(.06)	(.16)
Constant	-1.11	-.21	7.17	-.92	-.03	9.24
R^2	.41	.16	.36	.29	.10	.20
F	200.48**	45.51**	134.75**	29.47**	6.91**	15.23**
N	2,289	1,927	1,927	546	447	447
Mean (Y)	.40	.67	12.77	.30	.60	12.26
SD (Y)	.49	.47	1.76	.46	.49	1.35

[a] Restricted to those out-of-school who had completed 10 or more years of school.

[b] Reference group: general curriculum.

[c] Reference group: respondents living in small city or suburb at age 14.

* Significant at .10 level (2-tailed t-test except for SA and SEO).

** Significant at .05 level.

of both white and black women (i.e., 48 and 47 percent, respectively) with 10 to 15 years of school had done so by 1972 (see Table 11).

Participation in post-school training varied with their level of formal schooling. Among whites, for example, only 33 percent of high school dropouts had some training, while over 50 percent of high school graduates did, and the same pattern obtains for blacks. Furthermore, the type of training received varied by level of schooling. Among women of either race, those who had gone to college tended to gain training of a "professional or technical" nature, while those with high school diplomas tended to gain clerical or secretarial types of training (see Table 12).

Among the high school graduates who did not go to college, several differences are related to curriculum. Women from college preparatory programs were more likely than their classmates to receive some training, and among whites at least were more likely to receive "professional or technical" or "clerical" training. Women from business and office high school programs tended to get clerical or secretarial training, presumably to supplement the skills gained in school. Among women from the general curriculum, there were no extraordinary differences in the amount or type of training received.

It is also interesting to examine results for the general and college preparatory high school graduates according to whether they had received any typing or shorthand in high school. Surprisingly, the receipt of typing courses during high school seems to be related to a greater likelihood of receiving additional training. In fact, the proportions receiving post-school clerical or secretarial training are invariably higher for those with typing or shorthand during high school than for those without: for white college preparatory women the figures are 33 versus 21 percent; for white general curriculum graduates they are 24 and 15; and the analogous figures for blacks are 56 versus 18 and 22 versus 17 percent. Thus, information on amounts and types of post-school training received by young women suggests that training after high school may supplement the program of study taken in school.

Labor force participation. Although results from the NLS show that about nineteen of every twenty male respondents no longer in school were either working or seeking work at each NLS survey, the data for women reveal a different pattern. Many do not participate in (or seek) paid employment because of family responsibilities. Others work part-time, usually by choice, but sometimes because of the work opportunities available to them. Such patterns, by level of education and most recent high school curriculum, are of interest in their own right. In addition, they represent an important area for examining curricular differences in economic outcomes.

NLS data for 1972 reveal that, by and large, the more education a woman has completed, the greater the likelihood of her participation in the labor force and of working full-time rather than part-time.

Table 11 Percentage of respondents reporting post-school training, by highest year of school completed, high school curriculum (most recent), and race: women (1972) not enrolled in school.

(N in thousands)

	Whites		Blacks	
	N	Percent some training	N	Percent some training
10 to 11, total (avg)	2,303	33%	661	38%
12, total (avg)	6,501	52	771	51
Vocational	129	42	39	46
Business and office	2,061	54	160	60
General	2,844	46	454	46
College prep	1,354	64	112	56
13 to 15, total (avg)	1,643	51	141	66
10 to 15, total (avg)	10,447	48	1,573	47

[a] Percent not reported; base less than 25 sample cases.

Note: Data pertain to women 18 to 29 years old in 1972.

Table 12 Percentage of respondents reporting training outside regular school, by highest year of school completed 1972, high school curriculum (most recent), and race: women not enrolled, 1972

Highest year and curriculum	N ('000)	Percent reporting: Some training (unduplicated count)	Type: Prof tech, mgr.	Clerical	Skilled manual	Other
Whites						
10-11, total (avg)	2,303	33%	5%	10%	6%	20%
12, total (avg)	6,501	52	16	26	7	18
Vocational	129	42	11	14	3	25
Bus and office	2,061	54	14	31	5	19
General	2,844	46	12	22	8	16
w/ typing, shorthand	2,071	49	12	24	8	19
w/o typing, shorthand	768	36	12	15	6	8
College prep	1,354	64	27	30	10	20
w/typing, shorthand	913	70	28	33	12	26
w/o typing, shorthand	441	52	27	21	8	8
13-15, total (avg)	1,643	51	31	18	4	17
Blacks						
10-11, total (avg)	661	38	8	9	5	27
12, total (avg)	771	51	15	25	9	18
Vocational	39	46	9	17	3	27
Bus and office	160	60	21	29	9	22
General	454	46	14	20	9	15
w/typing, shorthand	278	45	14	22	7	14
w/o typing, shorthand	175	46	13	18	12	18
College prep	112	66	16	45	9	18
w/ typing, shorthand	80	72	17	56	11	15
w/o typing, shorthand	32	50	14	18	3	24
13-15, total (avg)	141	66	26	33	7	30

Concerning the high school graduates only, the participation rates of those with different curriculum backgrounds were quite similar to one another, but the percentage of employed women working full-time (35 or more hours per week) was higher among former occupational students than among their peers. The full-time rate was especially high for white women from "other vocational" programs and for blacks from business and office studies.

Differences in these rates reflect, of course, underlying variation in marital and family status. White business and office graduates were more likely than other whites in 1972 to be "married with children," but less likely to be "not married with no children" (i.e., single, divorced, widowed without children); overall, the difference in white labor force participation rates between business and office graduates and general graduates was only one percentage point. Black business and office graduates were less likely than their general peers to be "married with children," but more likely to be "not married with children"; the overall difference in black participation rates was only two percentage points. Thus, among both races, counter-balancing influences lead to similarities in labor force participation. Even so, of women who work, vocational and business and office graduates are still more likely to be full-time than are general graduates (e.g., among whites the rates are 87, 75, and 72 percent, respectively).

Unemployment. Analysis of the relationship between high school curriculum and unemployment among males in the NLS led to mixed findings. Specifically, a number of different measures of unemployment experience were used, and results with the different measures were found to vary.

However, the results for young women were found to consistently point to one conclusion. The graduates from occupational programs (most of whom were from the business and office area) were less likely to be unemployed at the various surveys than were the general curriculum graduates. Also, of those unemployed at each survey date, the spells of occupational program graduates were on average shorter than those of their peers.

Occupational attainment. Earlier we presented data on the types of work that female high school students said in 1968 they desired to have when they reach age 35. In this part, we review the occupations actually held in 1972 by those who were out of school. Table 13 is devoted to high school graduates without any college. As shown, very high proportions of business and office graduates held clerical jobs (74 percent of the whites and 60 percent of the blacks). These were jobs earning high "typicality" ratings (e.g., 65 percent of the white business and office graduates in our data were in occupations where over 80 percent of all workers are female). Interestingly, a high proportion of black college preparatory graduates also held clerical and traditionally female jobs.

Table 13 Occupation on current job (or last job if not employed), by high school curriculum and race: women not in school in 1972 who had completed exactly 12 years of school.

(N in thousands)

Occupation group and sex typicality	Total	Vocational	Business, Office	General	College Preparatory
			Whites		
Major group					
Professional, technical	6%	5%	5%	5%	11%
Clerical	60	29	74	52	55
Sales	7	14	3	8	8
Service	14	12	11	16	15
Blue-collar	13	40	7	19	11
Typicality					
Occupation 80-100% female	60	47	65	56	58
N	3597	106	1180	1384	854
			Blacks		
Major group					
Professional, technical	3%	a	6	2	2
Clerical	49	a	60	41	68
Sales	2	a	1	2	0
Service	20	a	18	24	5
Blue-collar	26	a	15	31	25
Typicality					
Occupation 80-100% female	51	a	55	44	62
N	408	16	98	233	56

[a] Percent not shown; base less than 25 sample cases.

At the same time, other vocational graduates (whites, at least) and black general curriculum graduates were especially likely to hold blue-collar positions. Jobs held by these groups showed the lowest sex-typicality ratings, but even here it was more than 40 percent who worked in predominantly female occupations.

We can broaden our view in Table 14 by reviewing the occupations held by women with various levels of schooling. As shown, while only 2 or 3 percent of women with 10 or 11 years of school hold professional or technical jobs, this is true of much higher proportions of those with 13 to 15 years of schooling (30 percent of whites and 21 of blacks). And while over half of those with 10 to 11 years hold blue-collar or service jobs, very few of those with 13 to 15 years held such jobs. Much of the variation seems to reflect improved opportunities for high school graduates over drop-outs.

The occupational distributions of employed women by their level of schooling also reveal some interesting differences by race. Among both high school dropouts and high school graduates, blacks are more likely than whites to hold blue-collar and service jobs, and are less likely than whites to hold clerical jobs. This situation does not obtain among those with some college. Here, blacks are more likely than whites to hold clerical jobs, and are about as likely as whites to hold blue-collar or service jobs. However, in every stratum, young black women are less likely than whites to be assigned to professional or managerial work.

Economic outcomes. This section analyzes the impact of curriculum on economic outcomes: in hourly rates of pay, in annual wage and salary earnings, and in two measures conceived as proxies for long-run labor market outcomes (the Bose socioeconomic index of the occupation held, and the 1969 median earnings of full-year incumbents). Regression analysis is used, and explanatory variables include measures of aptitude, socioeconomic origins, extent of work experience, whether received post-school training, tenure with the employer, whether full-time and whether the wages were covered by a collective bargaining agreement. Also a measure of the sex-typicality of the occupation is occasionally included.

Results of the comparable analyses for men indicated that partic-pation in an occupational curriculum during high school makes for little difference in the criterion measures, as compared to completion of a general program. This is not so among young women. The evidence suggests strongly that there are economic benefits to vocational education among females.

Selected regression results are shown in Table 15. The results for the business and office program (i.e., "B&072" in the table) show a $.27 advantage in hourly wage for whites, and $.26 for blacks. The

Table 14 Occupation on current (or last) job by highest year of school completed and race: women not enrolled in 1972.

	Women		
	10-11 years	12 years	13-15 years
Whites (n)	532	3,597	1,614
Prof, tech[a]	2%	5%	30%
Managerial	2	2	4
Clerical	38	60	43
Sales	4	7	4
Craftsmen	3	1	0
Operatives	17	9	3
Household	6	3	2
Service	24	14	13
Farm	1	0	0
Laborers	1	0	0
Blacks (n)	149	408	163
Prof, tech[a]	3%	2%	21%
Managerial	1	1	2
Clerical	22	50	54
Sales	1	1	2
Craftsmen	0	2	0
Operatives	24	20	9
Household	9	4	0
Service	38	20	10
Farm	0	0	0
Laborers	2	1	1

[a] Detail may not add to 100 percent due to rounding.

[b] Category was not included for women.

* Less than 0.5 percent.

Table 15 Selected unstandardized regression coefficients: women, not enrolled 1972, employed for wages or salary 1972, with exactly 12 years of schooling, by race[a]

(standard errors in parenthesis)

Dependent variable		Curriculum[c] Vocational	Business, Office	College Preparatory
Whites:				
Hourly rate of pay	b		.27** (.08)	.24** (.10)
Wages or salary, past 12 months	b		665** (181)	225 (219)
Bose occupational index	b		3.34** (.84)	-.03 (.99)
1969 full-year earnings[d]	b		262** (127)	198 (150)
Blacks:				
Hourly rate of pay	b		.26** (.12)	b
Wages or salary, past 12 months	b		683* (365)	b
Bose occupational index	b		-.30 (1.90)	b
1969 full-year earnings	b		-182 (216)	b

[a] Regression control for other variables listed in the text.

[b] Coefficient not reported; inadequate sample cases.

[c] Regression coefficients represent the net difference between each curriculum shown and the general curriculum.

[d] Refers to typical earnings in the respondent's occupation: i.e., median 1969 earnings of all female full-year workers in the occupation, from the 1970 decennial Census.

impact on annual earnings is also great: $665 for whites, and $683 for blacks. Each coefficient is statistically significant. Results for the other measures of long-run labor market position also indicate for white women (but not black) a positive effect. These results can be interpreted to mean that female business and office graduates enjoy a clear economic advantage over comparable graduates from the general curriculum.

Unfortunately we cannot report results for graduates of other vocational programs, because sample sizes are too small to permit. As for the effects of other variables not show in the Table, the receipt of any post-school training seems to add about $.10 per hour to rate of pay (though the coefficient is significant only for whites), and the longer-term consequence of training may be even more substantial, since it is found to exert a positive effect upon the Bose occupational index for both races. Also, both the quantity of work experience and the number of years of service with the current employer seem to have positive economic effects.

Unfortunately, an analysis of the effects of curriculum among the high school dropouts and among those with some college was not possible, because the numbers employed in 1972 were too small to permit analysis of curricular differences in these dimensions. From at least one perspective this was to be expected, for we have previously documented the smaller than average likelihood of former occupational curriculum graduates either dropping out of high school or of completing any college.

However, we can abstract from curriculum to investigate the effects on wages and earnings of women holding stereotypically female jobs. As we observed above, of the high school graduates, those from the business and office programs held such jobs and enjoyed a clear advantage in both hourly wage and annual earnings over those from the general track. However, more than this, we find that results from wage and earnings regressions demonstrate that the impact of employment in sex-typed occupations is <u>not</u> a simple or a straightforward matter.

As shown in Table 16, both wages and earnings rise with the level of education, and so does the index of typicality of occupation. For instance, the mean value of the index for those with 10 to 11 years, 12 years, and 13 to 15 years of schooling is 69.3, 74.8 and 77.6, respectively. Thus, higher levels of education of the women are associated with not only higher levels of wages and earnings, but also a greater likelihood of holding a traditionally female job.

However, <u>within</u> each educational level, the relationship between wages (or earnings) and the index varies. To illustrate, we use our regression results for women at each level of schooling to simulate the effects of a change <u>from</u> a job in which only 33 percent of all

Table 16 Effects of employment in stereotypically female occupations on hourly rate of pay and annual wage and salary earnings of women, by level of education and race

	Level of Education			Race	
	10-11 years	12 years	13-15 years	Whites	Blacks
	All Races			12 Years	
Results from wage regression					
Mean hourly wage	$2.25	$2.58	$3.35	$2.58	$2.54
Mean % female[a]	69.3	74.8	77.6	75.2	69.3
Simple correlation	-.305	-.049	.009	-.062	.081
Partial regression coefficient	-.010	-.003	+.002	-.003	.000
(t-value)	(-2.94)	(2.04)	(0.30)	(-2.05)	(0.07)
Regression n	80	599	171	474	119
Results from earnings regressions					
Mean earnings	$3215	$4174	$5510	$4158	$4284
Mean % female[a]	69.4	74.5	75.5	75.0	68.3
Simple correlation	-.263	-.014	.052	-.021	.063
Partial regression coefficient	-19.2	- 2.9	15.9	-3.5	2.1
(t-value)	(-2.27)	(-0.99)	(1.91)	(-1.06)	(0.33)
Regression n	77	558	135	445	109
Estimated effects of change of occupation from one that is 33% female to one that is 66%.					
. . . in hourly wage	-.33	-.10	n.s.	-.10	n.s.
. . . in annual earnings	-639.	n.s.	+529.	n.s.	n.s.

[a] Refers to the mean of the following: each respondent was assigned a value according to her 1972 occupation - namely, the proportion of all workers in that occupation who are females, taken from 1970 census data.

n.s. Refers to "no significant difference."

the incumbents are females, to a "typically female" one (i.e., 66 percent are females). Among high school dropouts, this change would result in a loss of $.33 per hour and $639 per year. Among high school graduates, the loss in hourly wage would be $.10, but there would be no significant difference in annual earnings. Among those with less than the baccalaureate degree, there would be no significant difference in hourly wage, but a gain of $529 in annual earnings. Also, as shown in the Table, the effects vary by race.

Stated differently, our regression results suggest that female high school dropouts in traditionally female jobs are earning less than their peers, both per hour and per year. However, female high school graduates in traditional jobs earn less per hour (but not per year) than their peers. And females with some college in traditional jobs actually are earning more per year than their peers.

As shown earlier, the occupations of women vary by their level of schooling. Thus, even among women in traditional jobs, the precise occupations held by those with some postsecondary education are not the same occupations that are held by high school dropouts. For instance, the occupations of those with 13-15 years of school include types of nurses and teachers as well as secretaries and clerks. The occupations of those with 12 years of school include secretary, clerk, operative, bookkeeper, attendant (hospital and other), and office machine operator. Finally, those of the high school dropouts include attendants (hospital and other), sewer and stitcher (manufacturing), operative, and clerk.

Summary. The findings indicate first that the meaning of vocational education enrollment information is different for young women than for young men. Despite the fact that the "consumer and homemaking" area contains the largest enrollments in federally-reimbursable vocational education, fewer than one percent of young women in the National Longitudinal Surveys identified home economics as their high school program of study.

Of the female high school students enrolled in occupational subjects, the vast majority were in the "business and office" specialty area. In addition, over four-fifths of the remaining, nonvocational females reported receiving courses in typing and/or shorthand during high school.

As compared to young women in the general curriculum, the vocational students are characterized by an intent to complete high school and not to go to college. Findings reveal that they are, in fact, more likely to graduate and less likely to enter college.

Also, it may be said that the occupational goals of vocational students are heavily sex-stereotypic, compared to their peers', and in fact, vocational students hold typically female jobs after leaving school.

However, despite being employed in traditionally female jobs, the business and office graduates enjoyed higher wages and suffered less unemployment than their peers from the general track (i.e., who completed high school and did not go to college).

It was found within every curriculum group that at least two-fifths of the high school graduates not entering college worked in sex-typed jobs, but working in "female" jobs did not necessarily mean lower wages than working in non-sex-typed occupations. As stated, business and office graduates were especially likely to do so, but enjoyed important advantages. Also, of women with some years of college (but less than a baccalaureate degree), those working in "female" jobs earned more per year than those working in less heavily stereotypic jobs.

According to these findings, young women in high school face important dilemmas. They seem to understand that nontraditional fields are somewhat more open today than historically. Indeed, they may feel pressured to exercise nontraditional options due to emphasis in the national media. Still, the available evidence on their career plans and on their choice of high school curriculum fails to indicate any significant response on their part to perceptions of broader options. It would seem that traditional factors and socialization continue to exert some influence.

More than this, our results show economic benefits to business and office programs. Both the wide availability of jobs in this field that facilitate easy entry and reentry, and the wage advantages that we have documented, can be expected to continue attracting young women, irrespective of consequences in terms of occupational sex segregation. According to NLS data on women with less than a four-year college degree, enrolling in a different high school curriculum reduces the likelihood of a traditionally female job only moderately and does lead to lower pay.

It is interesting to reflect upon the implication of our findings for the hypothesis mentioned at the outset: that secondary-level vocational education contributes to sex inequalities in the labor market. This was based on the notion that sex-segregated enrollments lead to occupational sex segregation and earnings inequities. Of course, our findings contradict this simple hypothesis in many respects.

To criticize vocational education for sex segregated enrollments in the belief that this will somehow help young women is, according to the evidence, misguided. Rather, to develop new hypotheses based on a clear understanding of the options available to young women now and in the future, as well as on young women's own needs, would seem to be a more promising endeavor.

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